

Kemira Supplier PCF Guideline

**PRODUCT CARBON FOOTPRINT REPORTING GUIDELINE FOR
KEMIRA DIRECT MATERIAL SUPPLIERS**

PUBLIC DOCUMENT – FOR KEMIRA STAFF AND BUSINESS PARTNERS

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1 DOCUMENT CHANGE HISTORY

Date	Version	Remarks	Sign-off
1.2.2023	1.0	Document created	JE
3.1.2024	2.0	Specifying gate, excluding freight emission reporting, links and definitions, content requirement	JE
13.1.2025	3.0	Clarifying gate definition, updating the PCF content reporting requirement	SA
14.4.2025	3.1	Minor changes to reporting section table	JE
30.12.2025	4.0	Change to PCF validity, change in title: GWP Biogenic CO ₂ withdrawal -> GWP biogenic CO ₂ -uptake, mandatory to answer yes/no to "Future potential to reduce the PCF for your product", Updated options for Verification approach	JA

Location of latest document version: <https://www.kemira.com/company/sustainability/resources/>

2 ACRONYMS AND DEFINITIONS

Allocation	In case of co-products, the process of allocating the emissions of the product system to the products with a specific allocation approach
Biogenic carbon	Carbon derived from biomass
Biogenic emissions	Carbon dioxide emitted during the burning and degrading of renewable materials, and other biogenic greenhouse gas emissions, such as methane from anaerobic degradation of biomass in landfills
Biogenic removal	Carbon dioxide bound during plant growth
CO₂eq	Carbon dioxide equivalent. Carbon dioxide equivalent is a measure used to compare the emissions from various greenhouse gases based upon their global warming potential. Global warming potentials of greenhouse gases are defined by IPCC.
EPD	Environmental Product Declaration
GHG	Greenhouse Gas
GWP	Global-warming potential
LCA	Life-Cycle Assessment
PCF	Product Carbon Footprint. Cradle-to-gate GHG emissions in kg CO ₂ eq per unit of sold product

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Primary PCF data	PCF data about the actual consumption of materials, energy, etc. collected directly at the source and concerning the specific value chains for the product out of each individual manufacturing facility where it is produced
SBTi	Science-Based Target initiative
SDG	Sustainable Development Goal
Secondary PCF data	PCF Data that is not from specific processes from the company's value chain, but derived from research, governmental or other public organizations and databases
Supplier	Manufacturer or distributor, who is the contractual party with Kemira
WBCSD	World Business Council for Sustainable Development

3 INTRODUCTION

Kemira has set ambitious climate targets for significant reductions in its greenhouse gas (GHG) emissions in line with the Science Based Target initiative (SBTi). As a part of reducing Kemira's upstream Scope 3 emissions, we are setting out to achieve value chain transparency with the ambition to work with our suppliers to manage our collective emissions. As over 80% of Kemira's GHG emission are estimated to occur in our value chain, we need to work together with our value chain partners to succeed.

Kemira is requesting information from its suppliers related to the carbon footprint of the products supplied to Kemira. The purpose is to collect, validate, manage and update Product Carbon Footprint (PCF) Data over time. This technical document provides Kemira's reporting guidelines for suppliers.

Kemira aims to understand the total environmental impact of Kemira's products and value chain also beyond the climate impact. We highly encourage suppliers to provide a Life Cycle Assessment (LCA) together with the PCF, to illustrate all the environmental aspects and impacts throughout the product's life cycle.

Reporting Checklist

You have received:

- ☐ Kemira Supplier PCF Guideline
- ☐ Kemira Supplier PCF Questionnaire (via MySourcing Portal)

Data and Documents to submit as part of the supplier PCF:

- ☐ PCF data by responding the PCF Questionnaire in MySourcing Portal
- ☐ LCA (if available)
- ☐ Environmental Product Declaration (if available)

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- ☐ Critical Review Statement (if available)

Please make sure that you have also familiarized yourself with Kemira's general supplier requirements, including:

- ☐ Kemira Code of Conduct for business partners: <https://www.kemira.com/code-of-conduct/>
- ☐ Detailed requirements specific to sourcing category and material

4 OVERVIEW OF REQUIREMENTS

This document considers requirements related to purchased direct materials Product Carbon Footprint (PCF) reporting.

The Product Carbon Footprint is the sum of greenhouse gas (GHG) emissions and removals of a product converted into a CO₂ equivalent (CO₂eq). The carbon footprint data shall be disclosed in **kg of CO₂eq per declared unit of unpacked as-delivered product**. In case of chemical products, the declared unit is often defined as 1 kg of product. In case the carbon footprint is including product packaging, it shall be clearly specified. In case the product contains free water, the PCF shall be reported on wet-basis (as-delivered product).

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Figure 1 below from the GHG Protocol shows the GHG emission scopes from the perspective of the reporting company. Kemira's upstream Scope 3 activities with a purchased good correspond to that goods supplier's Scope 1, Scope 2 and upstream Scope 3 activities.

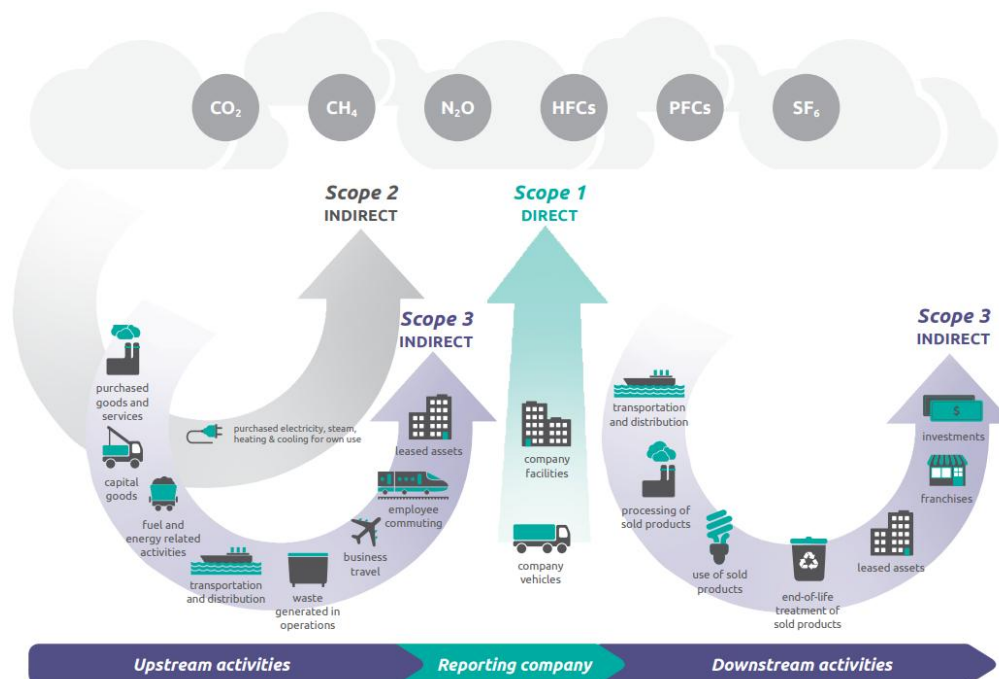


Figure 1: Overview of GHG Protocol scopes and emission across the value chain from the perspective of the reporting company.

Source: https://ghgprotocol.org/sites/default/files/standards/Corporate-Value-Chain-Accounting-Reporting-Standard_041613_2.pdf

The supplier PCF data to be provided is the **cradle-to-gate** product carbon footprint covering the product's life cycle from raw material extraction up until the Supplier's gate when material is loaded for shipment to Kemira's site (see Figure 2 when the Supplier is the manufacturer and Figure 3 for distributors and traders), including emissions of effluent and waste treatment. Emissions from transportation from the supplier's gate to Kemira shall not be reported as part of the PCF data.

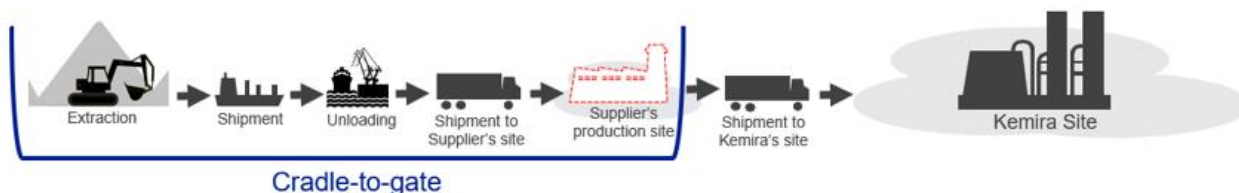


Figure 2: When the Supplier is the manufacturer. The gate = the Supplier's production site.

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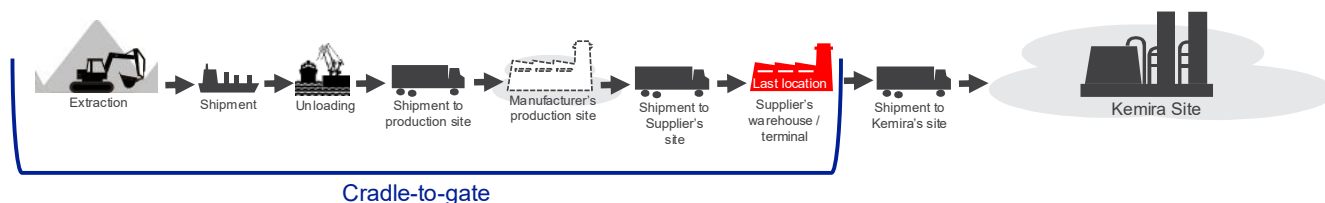


Figure 3: When the Supplier is a distributor or trader. The gate=the Supplier's warehouse/terminal.

If you have any additional documentation to support the PCF, such as a **LCA report**, **Environmental Product Declaration**, or **Critical Review Statement**, please provide this also to Kemira. Any exclusions from the carbon footprint data should be documented and reported to Kemira.

The information shared with Kemira will be strictly used to calculate product carbon footprint of Kemira products and GHG emissions management. The primary PCF data provided by a supplier to Kemira will not be directly shared with any third party that is not part of the Kemira Group or a cooperation partner contracted by Kemira and bound with an NDA. Kemira's emissions resulting from the use of the supplied product will be incorporated into Kemira own product carbon footprint calculation that will be openly shared with Kemira customers and other stakeholders.

4.1 Reporting Methodology

It is **recommended** to use the TfS PCF guideline for the PCF calculation.

At a minimum, the PCF shall be calculated **cradle-to-gate** per the ISO14067:2018 for carbon footprint of products, which builds on the principles and requirements of the ISO standards 14040:2006 and 14044:2006 for life cycle assessment, and additionally per the GHG Protocol Product standard. The required reporting content is outlined in section 4.2.

In case the supplier manufactures the same product in several plants, it is recommended that a separate PCF is reported for each plant from where the product is produced and supplied from to Kemira. At minimum, a separate PCF shall be reported for each region (EMEA, Asia Pacific, North America, South America) from where the product is produced and supplied from to Kemira.

It is recommended that an accredited third-party conduct an assurance or verification of the PCF data or alternatively that a critical review or a peer review is conducted.

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4.2 PCF reporting content

<u>Category</u>	<u>Attribute</u>	<u>Further explanation</u>	<u>Example</u>	<u>Mandatory</u>
<u>General Info</u>	Company name	(Legal) Name of data owner	My Corp	yes
	Supplier contact	Contact person	James Smith	yes
	Product trade name	Product name	Green Ethanol	yes
	Product description including reference to the solution for which PCF is reflected	Technical Description of product or waste plus other information related to it such as production technology	Ethanol, 95% solution	yes
	Concentration	Concentration for which the PCF is reflected to	Ethanol, 95% solution	yes
	CAS	CAS Number for the main component	58-08-2	yes, if available
	Producer information	Name of producer and relevant location details of the producer	Ally Chemicals LLC Region, Country, City, Postal Code, State	yes
<u>PCF Data</u>	Declared unit	Declared unit of product for which the PCF is reported	1 kg	yes
	PCF (incl. biogenic emissions and removals)	Cradle-to-gate PCF in kg CO ₂ eq/kg product Sum of separate emission values 1+2+3+4+5+6	0.8 kg CO ₂ eq/kg Ethanol 95%	yes, if product is bio-mass balance based and/or contain renewable carbon
	PCF (excl. Biogenic emissions and removals)	Cradle-to-gate PCF in kg CO ₂ eq/kg product Sum of separate emission values 1+2+4+5+6	2.6 kg CO ₂ eq/kg Ethanol 95%	yes

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	<p>Separated into emission values:</p> <p>1. GWP Fossil CO2 eq-emissions (net result of fossil emissions and removals)</p> <p>2. GWP Biogenic CO2eq-emissions (only other GHG emissions than CO2 – excludes biogenic CO2)</p> <p>3. GWP biogenic CO2-uptake (biogenic CO2 contained in the product)</p> <p>4. GWP direct land use change (dLUC) CO2eq-emissions</p> <p>5. GWP Land use (LU) CO2eq-emissions</p> <p>6. GWP Aviation CO2eq-emissions</p>	In kg CO2eq/Declared Unit	<p>1. Fossil CO2eq: 2.0 kg CO2eq/kg Ethanol 95%</p> <p>2. Biogenic CO2eq*: 0.4 kg CO2eq/kg Ethanol 95%</p> <p>3. Biogenic withdrawal: -1.8 kg CO2eq/kg Ethanol 95%</p> <p>4. Direct land use change /dLUC CO2eq: 0.1 kg CO2eq/kg Ethanol 95%</p> <p>5. Land use /LUC CO2eq: 0.2 kg CO2eq/kg Ethanol 95%5.</p> <p>6. Aviation CO2eq: 0.0 kg CO2eq/kg 95%</p>	<p>yes, if product is bio-mass balance based and/or contain renewable carbon</p> <p>Please keep in mind that reporting is mandatory if compliance with ISO 14067 or PEF is anticipated</p>
	Bio-mass balanced and/or renewable carbon content	Information if product contains bio-mass balance based and/or renewable carbon	Yes or No response	yes
	Biogenic carbon content (physical or Bio-mass balanced)	Kg Bio-C/kg product	0.495 kg biogenic C/kg Ethanol 95%	yes, if product is bio-mass balance based and/or contain renewable carbon
	Total carbon content	Kg C/kg product	0.495 kg/kg Ethanol 95%	yes
	Confirmation for cradle-to-gate PCF	Confirm that the provided PCF data is cradle-to-gate	Yes or No response	yes
	Confirmation for exclusion of packaging	Confirm that your cradle-to-gate PCF does <u>not</u> include the packaging	Yes or No response	yes
	PCF calculation standards or guidelines used (or	Standard used for calculating the PCF	PCR, Tfs Guideline 2024, ISO 14067: 2018	yes

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	product or sector specific rules if used)			
	Production technology	The production technology for which the PCF data is reflecting to	Electrolysis	optional
	Allocation approach	Type of allocation rules applied to multi-output processes	Mass allocation	yes, if applied
	Geography information of the study used for the PCF data	The region, country and city for which the study you have used if referring to	EMEA / U.K / London	yes
	Reference period start	Start of time period of data collection for primary data sources (this does not refer to publication dates of secondary data)	01/01/2020	yes
	Reference period end	End of time period of data collection for primary data sources	31/12/2021	yes
<u>Data Sources and Quality</u>	Primary data share (PDS)	Share of primary data in the final PCF, calculated according to current WBCSD Pathfinder Framework.	PDS 95%	optional
	Source of secondary data and version	Please indicate the source and version of secondary data used in your calculation.	ILCD, Carbon Minds, ecoinvent 3.10, open sources	yes
	Verification approach and organization	None, PCF Program certification, PCF 3rd party verification, PCF 2nd party verification, PCF 1st party verification or Mass balance certificate	PCF Program certification If other than none, state the name of the certification/verification body	yes
<u>Comments and Additions</u>	Recycled material content in your product	Recycled material means a by-product, side stream or waste	If yes, please describe the recycled material content If yes, please state the share of recycled	optional

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		stream other than carbon	material in your product [0-100 %]	
	Future potential to reduce the PCF for your product	If you foresee potential for PCF reduction, please specify	Target is to reduce the PCF by xy% by 2030 by switching emission-free electricity	mandatory for yes/no, optional for targets
	Life Cycle Assessment (LCA)	Information is a full Life Cycle Assessment (LCA) done in relation to the PCF calculation and if not are you planning to conduct a LCA in the future	LCA is not conducted, but there is a target conduct LCA in 2026	optional

* If the share of biogenic CO₂ emissions is not known and cannot be determined, the calculated CO₂ emissions shall be considered as fossil CO₂ emissions. In this case the CO₂ removal shall only be calculated based on the carbon content in the product.

Excluded information

- Engineering and R&D
- Business travel and commuting
- Production of investment goods
- Defined cut-off activities

Optional information

- Packaging (shall be specified if included)

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4.3 Secondary data used for PCF reporting

The product carbon footprint calculation shall be based as much as possible on primary data, meaning actual consumption of materials and energy collected directly at the source. If primary data is not available, secondary data can be used to fill in the gaps. Secondary data refers to data derived from, for example, research, governmental or other public organisations and databases. In the case of a trader or distributor, the upstream manufacturing emissions in product carbon footprint cannot be based solely on secondary data. In case secondary data has been used, the secondary data source and its share in the calculations should be specified and reported to Kemira. Supplier shall use the latest database versions available on market in its calculations.

Recommendations for sources of Secondary emission factors

<u>Ecoinvent (use latest version available on market)</u> https://ecoinvent.org/	Database that is a compliant data source for studies and assessments based on ISO 14040/14044, 14067 and TfS.
Commercially available PCF software tools	Commercially available PCF software tools (such as for example Sphera/ GaBi) contain emission databases to support PCF calculation.
<u>GLEC (Global Logistics Emissions Council)</u> https://www.smartfreightcentre.org/en/how-to-implement-items/what-is-glec-framework/58/	Global framework and method for calculation and reporting of logistics emissions.
EcoTransIT WorldEco https://www.ecotransit.org/en/	Solution to calculate emissions of global freight transports.

4.4 Offsetting

The PCF must be reported to Kemira without offsetting. In case of offsetting, please provide Kemira with further information and evidence of these activities.

4.5 How to report PCF

It is recommended that suppliers use Kemira Supplier PCF Questionnaire to report the PCF. Alternatively, suppliers may provide the PCF Data in their existing reporting format (such as, for example, a PDF) as long as provided PCF Data is compliant with the content requirements per section 4.2.

4.6 Timelines for the requirements

In case the supplier does not have a PCF readily available, Kemira expects that the supplier will calculate and report the PCF as soon as possible but latest within one year from Kemira's PCF request. The PCF is valid up to 3 years unless otherwise required by Kemira, but more regular updates are recommended and required if impactful changes (>20% of PCF) have occurred.

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5 RESOURCES

TfS PCF Guideline

<https://www.tfs-initiative.com/pcf-guideline>

Other references

GHG Protocol Product Standard https://ghgprotocol.org/product-standard	The Product Life Cycle Accounting and Reporting Standard can be used to understand the full life cycle emissions of a product and focus efforts on the greatest GHG reduction opportunities.
GHG Protocol Corporate Standard https://ghgprotocol.org/corporate-standard	The GHG Protocol Corporate Accounting and Reporting Standard provides requirements and guidance for companies and other organizations preparing a corporate-level GHG emissions inventory.
<u>GHG Protocol Value Chain (Scope 3) Standard</u> https://ghgprotocol.org/standards/scope-3-standard	The Corporate Value Chain (Scope 3) Accounting and Reporting Standard allows companies to assess their entire value chain emissions impact and identify where to focus reduction activities.
<u>ISO 14040</u>	Environmental management — Life cycle assessment — Principles and framework
<u>ISO 14044</u>	Environmental management — Life cycle assessment — Requirements and guidelines
<u>ISO 14067</u>	Greenhouse gases — Carbon footprint of products — Requirements and guidelines for quantification
Kemira Sustainability <u>page</u> https://www.kemira.com/company/sustainability/	Kemira sustainability section in corporate web page
Kemira supplier page https://www.kemira.com/suppliers/	Kemira supplier and sustainable sourcing web page section

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